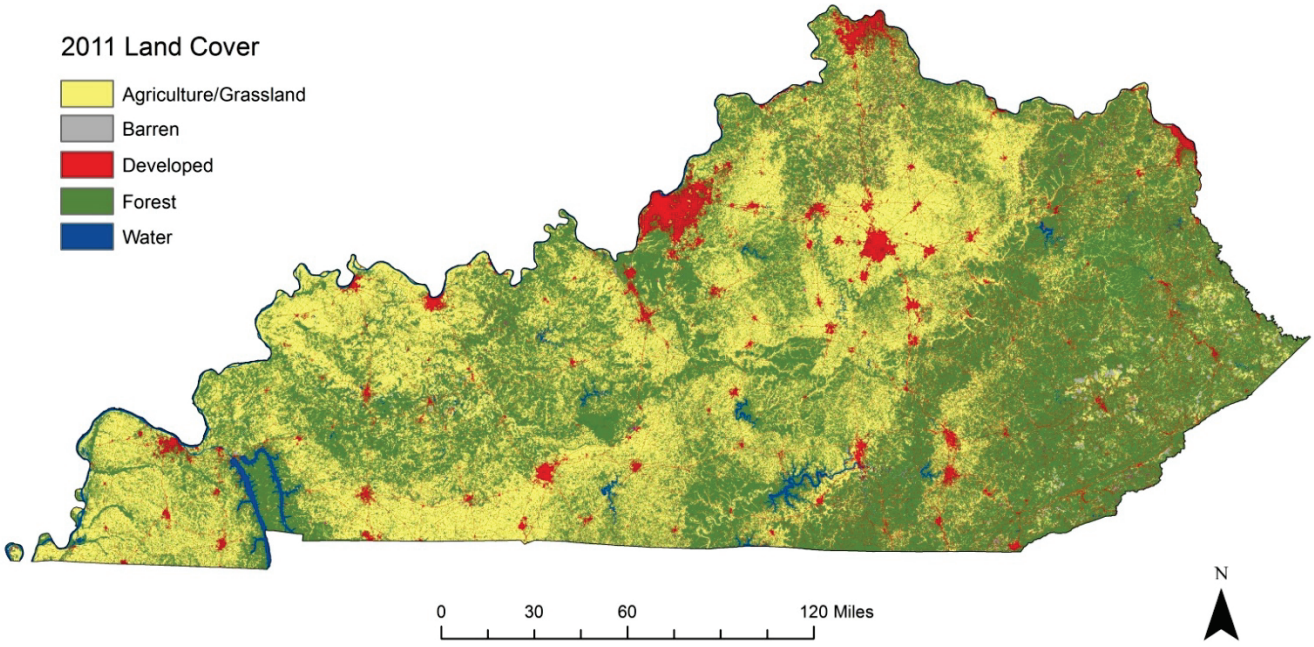
Kentucky

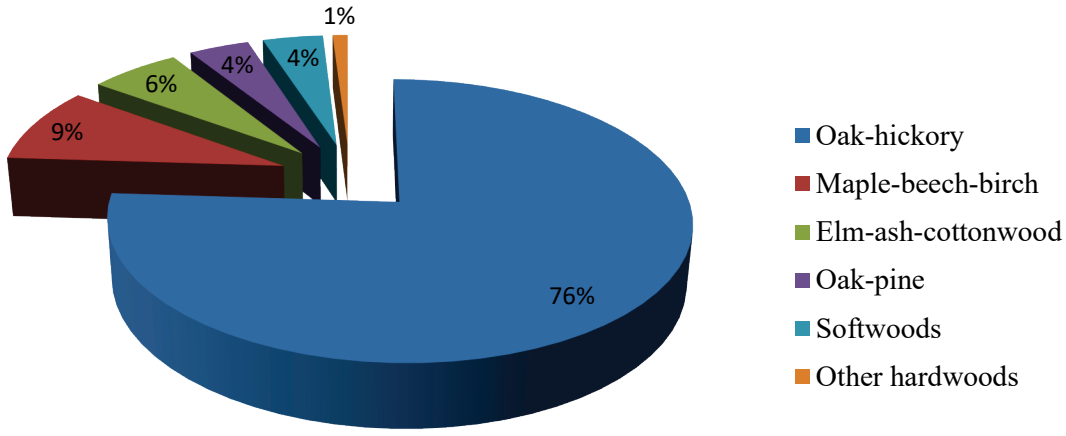
Forest Health Highlights 2019

The Resource

Kentucky's forests are a vital source of aesthetic, economic, and ecological value. They provide scenic beauty, support outdoor recreation and tourism, and provide critical wildlife habitat from the eastern Appalachian Mountains to the western Mississippi Valley. Woodlands cover an estimated 12.4 million acres within the state, which equates to 48% of Kentucky's land area. The eastern portion of the state, specifically counties within the Appalachians and the Cumberland Plateau, represent the most heavily forested areas. Many of these counties contain woodlands that cover more than 80% of the land area. The majority of the state's forestland, approximately 88%, is privately owned. Kentucky has one of the most diverse hardwood mixes in the nation, yet the predominant forest type is oak-hickory, which covers nearly 9.5 million acres or 76% of the forested land. The most common species are red maple, sugar maple, and yellow-poplar.

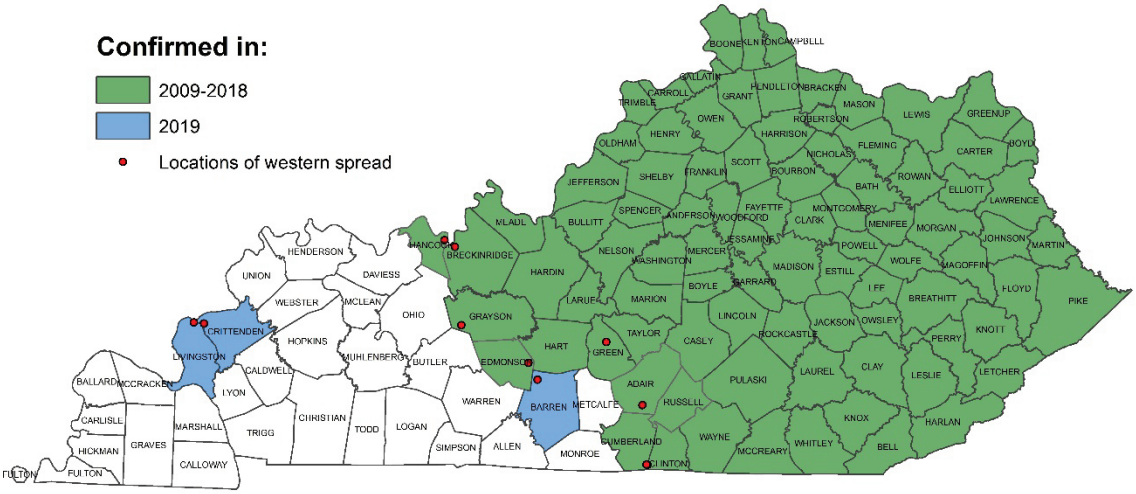


Kentucky Forest Type Distribution



Insects

Emerald Ash Borer



Last updated: October 1, 2019

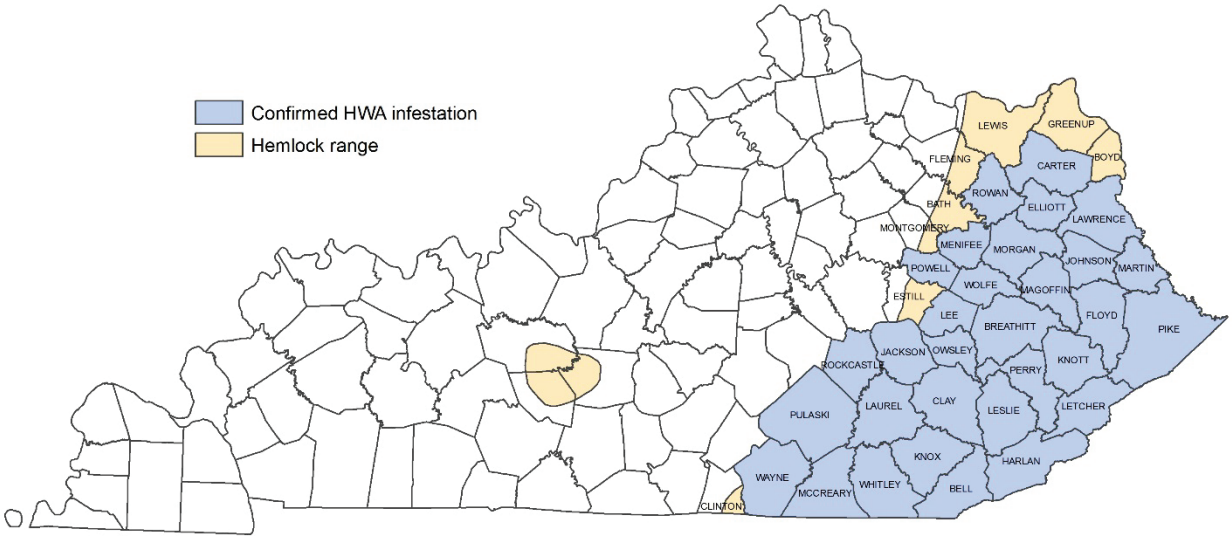
Infestations of the emerald ash borer (EAB) were first confirmed in Kentucky in 2009. A quarantine of 20 northern Kentucky counties, located in the region between Louisville and Lexington, was initially established. In the following years, additional EAB infestations were found in nearby counties and the state quarantine was expanded. In April of 2014, the county quarantine system was rescinded and the entire state was added to the USDA APHIS list of regulated areas. Currently, EAB has been confirmed in 92 Kentucky counties. In 2019, EAB was confirmed in three new counties: Barren, Crittenden, and Livingston. EAB will eventually impact ash resources across the entire state as the infestation continues to spread into western Kentucky. Infestations in neighboring states of Indiana, Illinois, Missouri, and Tennessee can only aid this expansion within the coming years.

Hemlock Woolly Adelgid

The hemlock woolly adelgid (HWA) was first discovered in Kentucky in 2006. Approximately 98% of Kentucky's hemlocks are found in the eastern one-third of the state. In this region, infestations currently occur in 31 counties. The counties include: Bell, Breathitt, Carter, Clay, Elliott, Floyd, Harlan, Jackson, Johnson, Knott, Knox, Laurel, Lawrence, Lee, Leslie, Letcher, Magoffin, Martin, McCreary, Menifee, Morgan, Owsley, Perry, Pike, Powell, Pulaski, Rockcastle, Rowan, Wayne, Whitley, and Wolfe.

The Kentucky Division of Forestry (KDF) has a field crew responsible for treating hemlocks to prolong the survival of this ecologically significant tree. Chemical insecticide treatments are employed in order to suppress hemlock woolly adelgid populations. Treatments began in 2009 on Kentucky State Forests and has since expanded to include properties managed by the Kentucky State Parks, Office of the Kentucky State Nature Preserves Commission, KDFWR Wildlife Management Areas, and USFS Daniel Boone National Forest. Since 2009, KDF has chemically treated over 175,000 hemlock trees.

KDF has also continually released two species of predatory beetles that feed especially on HWA within the DBNF in hopes of creating a future field insectary site. Although there has been no evidence of predatory beetle establishment within the release sites to date, upcoming releases will take place adjacent to past release sites to increase chances of establishment.



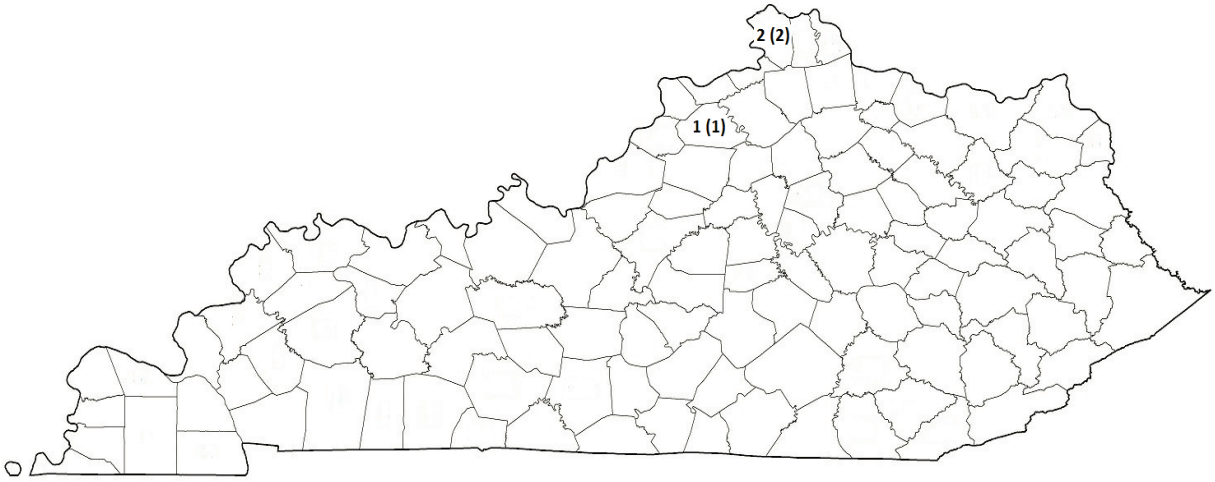
Yellow-poplar weevil

Much of eastern and central Kentucky experienced an outbreak of the yellow-poplar weevil. Generally, this native insect is considered a minor pest, but the weevil was reported at higher than normal levels the past few years. Reports of browning yellow-poplar trees began in June of 2019. After it became evident that many counties had infestations, ground surveys were conducted to confirm the general extent of damage from this pest. As in 2018, no major decline was documented. However, periods of drought occurred in 2019 and that in combination with the feeding damage could lead to possible localized decline.

Scarlet oak sawfly

Browning oak trees were reported in parts of eastern Kentucky again in 2019. For the second year in a row, the scarlet oak sawfly had caused feeding damage on oaks. The majority of damage in 2019 was reported in Magoffin County. In the past, no long term damage had been expected from this periodic pest of oak trees. Yet, the long term effect of this year's infestation is yet to be determined as we experienced multiple extreme weather events, including a late season drought.

Gypsy moth



Gypsy moth surveys have been conducted since 2005 through various agencies and programs. This pest is not yet established in Kentucky, although it has been detected every year since the surveys began. Kentucky's Office of the State Entomologist annually traps for gypsy moth using detection surveys through USDA APHIS and Slow the Spread programs. In 2019, traps were placed in 78 counties across the state. Three positive traps were found across two counties with a total of three moths captured. Counties with positive traps include Boone and Henry, which are located within northern Kentucky. Positive trap catches were down from 4 moths in 2018, 12 moths in 2017, 68 moths in 2016, and 171 moths in 2015.

2019 Positive Gypsy Moth Trapping Results

Asian Longhorned Beetle

The Asian longhorned beetle (ALB) continues to be a potential pest of concern for Kentucky. Although ALB has not been found in Kentucky, it was discovered in 2011 in Clermont County, Ohio, which is only 10 miles from the Kentucky border. KDF works with various agencies to educate the public on ALB identification and signs of infestation.

Asian Woolly Aphid

Recently, sporadic hackberry and sugarberry decline has been reported from numerous locations within the southeastern United States. Forest health professionals have not determined the causal agent for this decline, although it has been agreed upon that it is most likely a multi-factored problem. The Asian woolly aphid (AWA) continues to be a potential pest of concern for this decline complex. Through general field observations in 2019, AWA infestations were documented in the southwestern portion of Kentucky. In 2020, KDF will complete detection surveys for this impending pest.

Diseases

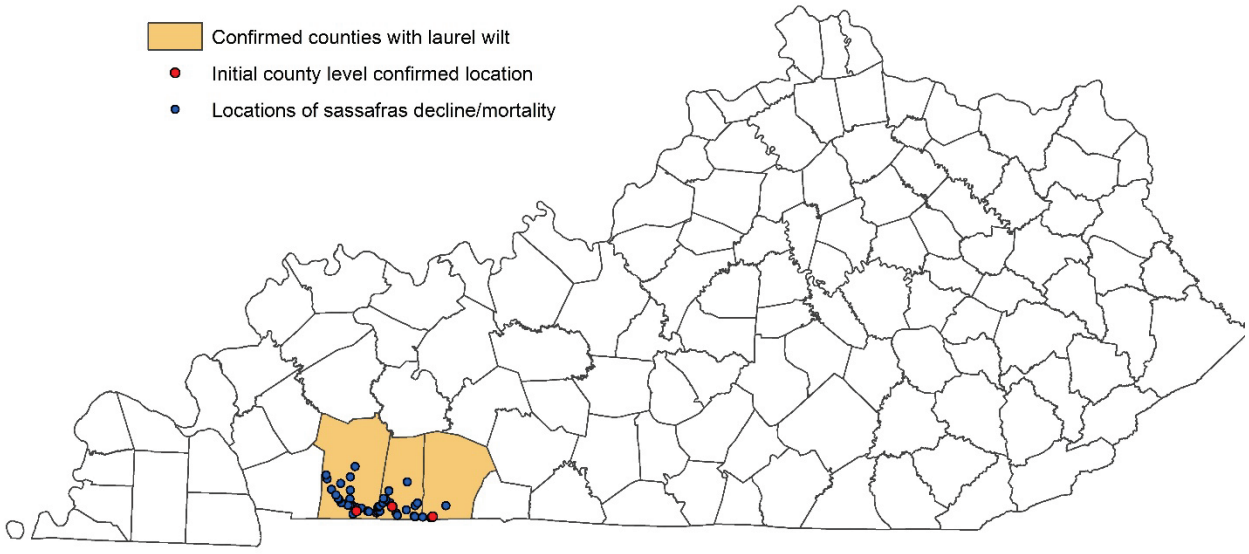
KDF placed 9 funnel traps in seven north central Kentucky counties to trap for the walnut twig beetle associated with thousand cankers disease (TCD). The counties include: Franklin, Owen, Carroll, Gallatin, Boone, Grant, and Fleming. Neither the fungus nor the insect vector of TCD have been confirmed in Kentucky even though the disease has been confirmed in neighboring state of Indiana, Ohio, and Tennessee for a number of years. Trapping for the walnut twig beetle will continue in 2020.

Laurel Wilt Disease and the Redbay Ambrosia Beetle

In 2019, Laurel Wilt Disease (LWD) was first documented in Kentucky in Christian, Todd, and Logan Counties. LWD was first confirmed inside the Fort Campbell Army Base in Christian county, Kentucky. After this initial detection, ground surveys were used to learn the extent of the outbreak. LWD samples from Todd and Logan counties came back positive as well. These counties are all along the Tennessee border, where this disease has also been reported.

Redbay ambrosia beetles vector LWD by boring into species of the Laurel family, such as sassafras and spicebush. A single female can transmit enough spores of the lethal fungus, *Raffaellea lauricola* to kill a tree. The fungus infects the xylem, blocking off the vascular system and causing wilting and mortality. Mortality can occur within weeks to months after being infected. Signs of beetle activity include very small circular holes in the bark, occasionally accompanied by thin sawdust toothpicks of waste. Other symptoms caused by the fungal pathogen include wilting or early fall coloration of leaves on suspect trees that may remain attached for months. In most infected trees and shrubs the fungus causes distinctive, dark staining within the sapwood.

Next year, a pilot study in cooperation the USFS SRS will investigate the efficacy of a fungicide treatment as a method to combat this disease in municipal trees. The national champion, and possibly the world's largest, sassafras tree is located in Owensboro, Kentucky.


Confirmed counties with laurel wilt
Initial county level confirmed location
Locations of sassafras decline/mortality

Last updated: August 14, 2019

Bacterial Leaf Scorch

Bacterial leaf scorch is vectored by various leafhopper and treehopper species and it affects multiple tree species including elm, maple, sycamore, and oak. This disease is common on many urban landscapes throughout the state. Symptoms include a scorched leaf appearance that can begin to appear in July and progressively gets worse through the end of summer. Symptoms occur annually as the disease progresses through the crown. Leaf scorch occurs as a result of a bacteria growing inside the tree's vascular tissue where it blocks water movement. Reduced growth and branch dieback soon follow, resulting in slow decline and eventual death of the tree.

References:

- Kentucky's Office of the State Entomologist provided data from their gypsy moth survey.
- 2011 Land Cover data was obtained from the National Land Cover Database.
- Photos with image numbers taken from Bugwood.org

Forest Health Assistance in Kentucky

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